

## Item #20a and 20b: Furbearer Population

**Evaluation Objectives:** To monitor changes in the population status of forest carnivores including Canada lynx, wolverine, and fisher on the forest.

**Methods:** Forest allocations of activity acres approved in the biological opinion for the 2007 Northern Rockies Lynx Management Direction decision are reported annually to the FWS (Tables 20-1 and 20-2). Montana Fish, Wildlife and Parks (FWP) annually collects harvest data on several furbearer species through mandatory trapper pelt registration and carcass or skull turn-ins. This information is analyzed and used to estimate population trends for these species to manage harvest quota levels. Carnivore population is provided for the period 1994-95 and 2010-11 using FWP trap data (Tables 20-3 and 20-4). FWP data includes numbers of animals trapped by trapping district (TD), as well as yearly sums by sex of harvested animals. Trapping district 1 encompasses all of northwest Montana and includes the Flathead National Forest (FNF), Kootenai National Forest and the north half of the Lolo National Forest in primarily Sanders, Lincoln, Flathead and Lake Counties.

### Evaluation:

#### A. Canada Lynx

Although managed as a furbearer in Montana, the lynx was listed as "threatened" in the lower 48 states under a proposed rule by the Fish and Wildlife Service (FWS) on June 30, 1998. The FWP Commission voted to close the lynx trapping season in Montana for the 1999-2000 season. In April, 2000, the FWS officially declared the lynx as "threatened" under the Endangered Species Act in the lower 48 states. There is no longer a trapping season for lynx and no lynx have been legally harvested since 1997. The Forest Service Rocky Mountain Research Station (RMRS) has and continues to conduct research on lynx ecology including demography, habitat-use at multiple scales, movements, dispersal, denning, relationship to coyotes, and distribution since 1997. Canada Lynx Analysis Units (LAUs) are used for analyzing lynx habitat for projects and forest-wide summaries. The Northern Rockies Lynx Management (NRLM) Direction Record of Decision (ROD), published in 2007, lists standards and guidelines for lynx habitat that are to be analyzed by LAU. Forest allocations of activity acres approved in the biological opinion for the 2007 decision are reported annually to the FWS (Tables 20-1 and 20-2).

**Table 20-1.** Acres of Fuel Treatment Exceptions in Lynx Habitat, Flathead National Forest, 2007-2010.

Lynx Habitat Treated	Lynx Habitat Treated Outside WUI	Lynx Habitat Treated Within WUI	Lynx Habitat Treated Within WUI where Exceptions to Standard(s) Apply	Forest Allocation per Incidental Take Statement	Current Forest Balance
13,526	5,694	7,828	2,509	103,800	101,291

**Table 20-2.** Acres of Pre-commercial Thinning Exceptions in Lynx Habitat, Flathead National Forest, 2007-2010.

Acres Treated	Forest Acreage Allocation for Incidental Take Statement	Current Forest Balance
203	1,460	1,257

The Forest Service RMRS has conducted research on lynx ecology. The University of Montana has an on-going partnership study since 1999 on snowshoe hares on the forest and nearby locations. Information from this work has helped improved information and management for the Canada lynx and snowshoe hares. Some of the recent research is presented below.

Squires, J.R. 2008. Predicting the effects of forest management on lynx populations. *Wild Felid Monitor*: Winter 1(1):14.

Squires, J.R., N.J. Decesare, J.A. Kolbe, and L.F. Ruggiero. 2008. Hierarchical den selection of Canada lynx in western Montana. *J. of Wildlife Management* 72:1497-1506.

Squires, J.R., and L.F. Ruggiero. 2007. Winter prey selection of Canada lynx in northwestern Montana. *J. of Wildlife Management* 71:310-315.

Kolbe, J. A., J. R. Squires, D. H. Pletscher, and L. F. Ruggiero. 2007. The effect of snowmobile trails on coyote movements within lynx home ranges. *J. of Wildlife Management*.71(5):1409-1418.

Kolbe, J. A., J. R. Squires. 2007. Circadian activity patterns of Canada lynx in western Montana. *J. of Wildlife Management* 71:1607-1611.

Squires, J. R., L. F. Ruggiero. 2007. Winter Prey Selection of Canada Lynx in Northwestern Montana. *J. Wildlife Management* 71(2):310-315.

Squires, J. R., L. F. Ruggiero, J. A. Kolbe, N. J. DeCesare. 2006. Lynx ecology in the intermountain West. USFS Rocky Mountain Research Station, Missoula, MT, 51pp.

Walker, C. W., Hodges, K. E., and L. S. Mills. 2011. Influence of stand and landscape features on snowshoe hare densities in fragmented forests. *J. of Mammalogy*. In Press.

Griffin, P. C., and L. S. Mills. 2009. Sinks without borders: snowshoe hare dynamics in a complex landscape. *Oikos* 118:1487-1498.

Hodges, K. E. and L. S. Mills. 2008. Designing fecal pellet surveys for snowshoe hares. *Forest Ecology and Management*. 256:1918-1926.

Griffin, S. C., M. L. Taper, R. Hoffman, and L. S. Mills. 2008. The case of the missing marmots: are metapopulation dynamics or range-wide declines responsible? *Biological Conservation* 141:1293-1309.

Griffin, P. C. and L. S. Mills. 2007. Pre-commercial thinning reduces snowshoe hare abundance in the short term. *J. of Wildlife Management* 71:559-564.

Griffin, P.C., S. C. Griffin, C. Waroquiers, and L. S. Mills. 2005. Mortality by moonlight: predation risk and the snowshoe hare. *Behavioral Ecology* 16:938-944.

Mills, L. S., P. C. \*Griffin, K. E. Hodges, K. McKelvey, L. Ruggiero, and T. \*Ulizio. 2005. Pellet count indices compared to mark-recapture estimates for evaluating snowshoe hare density. *J. of Wildlife Management* 69:1053-1062.

## **B. Wolverine**

Montana is the only state where wolverine trapping is still legal in the lower 48 states. Since at least the early 1980s, the trapping season for the wolverine has remained relatively unchanged, with a limit of 1 per trapper. Before 2004, average statewide wolverine harvest was 10.5 wolverines per year with Flathead and Lincoln Counties provided 87% of the known harvest in TD1. The three forks of the Flathead River and the Swan River produced about 60% of the wolverine harvest. There now appears to be a decrease in the number of wolverines harvested in Flathead County and an increase in the number of wolverines being harvested in Lincoln County. From 1992-2002 an average of 2.6 wolverines were harvested annually in TD1. This figure has declined recently. The state quota was 11-12 animals per year with 5 animals for TD1 up until 2008-09 winter season. The harvest quota is now 5 animals statewide with 3 animals for TD1.

Due to preliminary results of the study that identified the risks of loss of wolverines in isolated mountain ranges Squires *et al.* (2007, pp. 2213–2220), the MFWP adopted new regulations for the 2004–2005 trapping season that divided the State into three units, with the goal of spreading the harvest more equitably throughout the State. For the 2008–2009 trapping season, MFWP adjusted its wolverine trapping regulations again to further increase the geographic control on harvest to prevent concentrated trapping in any one area, and to completely stop trapping in isolated mountain ranges where small populations are most vulnerable. Their new regulations spread harvest across three geographic units (the Northern Continental Divide area, the Greater Yellowstone area, and the Bitterroot Mountains), and established a statewide limit of 5 wolverines.

The FWS added the wolverine to the candidate species list on December 14, 2010 (Federal Register / Vol. 75, No. 239) with the publishing of a 12-Month Finding on a Petition to List the North American Wolverine as Endangered or Threatened. Listing the contiguous U.S. Distinct Population Segment of the North American wolverine is precluded by higher priority actions to amend the Lists of Endangered and Threatened Wildlife and Plants. The information presented within the 12-month finding summarizes the best available science.

The Forest Service is the lead agency for the Interagency Wolverine Science Team which is working on a conservation strategy for the wolverine. The Forest Service RMRS has conducted research on wolverine ecology. Some of the recent research is presented below.

Copeland, J. P., K.S. McKelvey, K.B. Aubry, A. Landa, J. Persson, R.M. Inman, J. Krebs, E. Lofroth, H. Golden, J.R. Squires, A. Magoun, M.K. Schwartz, J. Wilmot, C.L. Copeland, R.E. Yates, I. Kojola, and R. May. 2010. The bioclimatic envelope of the wolverine: do climatic constraints limit its geographic distribution? *Can. J. Zool.* 88: 233-246.

Schwartz, M.K., J. P. Copeland, N. J. Anderson, J.R. Squires, R.M. Inman, K.S. McKelvey, K.L. Pilgrim, L.P. Waits, and S. A. Cushman. 2009. Wolverine gene flow across a narrow climatic niche. *Ecology*, 90(11):3222-3232.

Schwartz MK, Aubry KB, McKelvey KS., Pilgrim KL, Copeland JP, Squires JR, Inman RM, Wisely SM and Ruggiero LF. 2007. Inferring Geographic Isolation of Wolverines in California Using Historical DNA. *J. of Wildlife Management* 71:2170-2179.

Squires, J.R., J.P. Copeland, T.J. Ulizio, M.K. Schwartz, and L.F. Ruggiero. 2007. Sources and Patterns of Wolverine Mortality in Western Montana. *J. of Wildlife Management* 71:2213-2220.

Ruggiero, L. F., K. S. McKelvey, K. B. Aubry, J. P. Copeland, M. G. Hornocker, D. H. Pletscher. 2007. Wolverine conservation and management. *J. of Wildlife Management* 71(7).

### **C. Fisher**

After a series of reintroductions, in 1985, the trapping season for fisher was re-opened for the first time in over 20 years. A quota of 10 was established for FWP TD1. In 1994, the quota was reduced to 5 and further reduced to 2 in 1997. The state quota is only 7 animals and remains 2 for TD1 which includes the FNF. No fishers were trapped in Flathead County from 1996-2011. Montana is the only State in the NRM region where legal trapping for fishers occurs. Fishers have been trapped successfully every year since the mid-1980s in Montana, indicating that fisher populations in some areas are persisting at some level.

An examination of the major drainages from which fisher were captured further illustrates the shifts in trapper success. Prior to 1990, the South Fork of the Flathead had the most captures in Region 1 with a total of 12. Since then, only 1 has been harvested. None were taken from the North or Middle Forks during the 1990s, and the number from the Swan Valley dropped from 4 to 1. The only fisher trapped in the Whitefish Range during the 1990s was captured on Stryker Ridge in 1996. It was ear-marked and had been part of a transplant from Edmonton, Alberta to the Gold Creek area of British Columbia in 1995. While no fishers have been captured on the FNF or adjacent areas in recent years, it is important to note that FWP personnel have encountered fisher tracks several times each year for the past several years during the course of winter track surveys. The Forest Service RMRS is conducting Region 1 wide distribution surveys. Study objectives are to delineate the geographic range of fisher in the Rocky Mountains. Specifically in detecting all the populations, and determining these populations boundaries and determine which Rocky Mountain fisher populations have native genes and which fisher populations are from reintroductions.

The FWS on April 16, 2010, Federal Register/Vol. 75, No. 73, announced a 90-day finding on a petition to list a distinct population segment (DPS) of the fisher in its Northern Rocky Mountain (NRM) range, including portions of Montana, Idaho, and Wyoming. The FWS found that the petition presented substantial scientific or commercial information indicating that listing a DPS of fisher in the NRMs of the United States may be warranted. The FWS initiated a review of the status of the species to determine if listing the fisher in the NRMs of the United States is warranted. After review of all available scientific and commercial information, the FWS (2011b) found that listing the fisher in the U.S. Northern Rocky Mountains (USNRMs), which includes portions of Montana, Idaho, and Wyoming, as threatened or endangered is not warranted at this time.

The Forest Service RMRS has conducted research on fisher ecology. Some of the recent research is presented below.

USDA, 2006 - Habitat Estimates For Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher. Missoula, MT.

Schwartz MK. 2007. Ancient DNA confirms native rocky mountain fisher avoided early 20th century extinction. J. of Mammalogy 88:921-925.

Ray S. Vinkey, Michael K. Schwartz, Kevin S. Mckelvey, Kerry R. Foresman, Kristine L. Pilgrim, Brian J. Giddings, and Eric C. Loth. 2006. When Reintroductions are Augmentations: The Genetic Legacy of Fishers in Montana. J. of Mammalogy, 87(2):265-271.

#### **D. Harvest Summaries**

There were 8 lynx harvested on the FNF in 1996 and no legal harvest since that time. Lynx trapping was prohibited by the state in 1999. The FNF is located within FWP Region1.

**Table 20-3.** Captures and non-harvest from FWP Regions.

YEAR	TOTAL	R-1	R-2	R-3	R-4	R-5	COMMENTS
1994-95	9						
1995-96	12						
1996-97	12						
1997-98	15						
1998-99	9						
1999-00	4						
2000-01	14	1	6	5	2	0	-includes 1 illegal mortality
2001-02	14	1	0	12	1	0	-includes 2 unk & 2 research mortalities
2002-03	16	2	2	9	2	1	-includes 1 predation mortality
2003-04	12	1	2	5	2	2	-includes 2 research mortalities
2004-05	11	3	1	6	1	0	
2005-06	11	0	4	4	2	1	
2006-07	8	1	0	5	2	0	

2007-08	9	4	0	5	0	0	
2008-09	6	1	2	1	2	0	
2009-10	3	1	1	1	0	0	
2010-11	4	0	3	1	0	0	

**Table 20-4.** 2000-2010 Fisher captures and non-harvest from FWP Regions.

YEAR	TOTAL	R-1	R-2	COMMENTS
1994-95	8			
1995-96	2			
1996-97	6			
1997-98	7			
1998-99	8			
1999-00	5			
2000-01	8	0	8	-includes 1 incidental mortality
2001-02	7	2	5	
2002-03	9	2	7	-includes 2 incidental mortalities
2003-04	9	2	7	-includes 1 incidental mortality
2004-05	8	0	8	-includes 1 incidental mortality
2005-06	11	3	8	-includes 2 incidental mortalities
2006-07	7	2	5	
2007-08	7	1	6	-includes 1 incidental mortality
2008-09	7	1	6	
2009-10	8	1	7	-includes 2 incidental mortalities and 1 illegal
2010-11	8	1	7	-includes 1 incidental mortality

### E. Track Surveys

Snow track surveys are utilized to determine species occurrence and distribution, trends from detection rates and relative abundance. Results and statistics could vary based on timing of surveys, snow conditions and surveyor expertise. The relative abundance of lynx, wolverine and fishers are low throughout the forest and northwest Montana. The previous plan monitoring report provided information on track surveys conducted by FWP and FS biologists in TD 1 and by Forest Service RMRS for lynx/coyote competition.

### Summary

Canada lynx, wolverine and fisher are all rare top-level carnivores with unique habitat or prey requirements. These species' presence is difficult to monitor with being some of the lowest density carnivores in the Northern Rocky Mountains. For the wolverine and fishers very low annual harvest quotas are set; there is no legal harvest for lynx. Without quotas, generally trapping harvest is influenced by fur prices and efforts of individual trappers, while winter track data is influenced by changes in route locations, observers, and miles surveyed between years or periods. These influences make comparisons or trends difficult. FWP harvest surveys are conducted annually as a vital part of wildlife management programs but track survey efforts have been inconsistent. Montana FWP conducts surveys to evaluate:

- 🐾 How many animals were harvested from certain populations or areas;
- 🐾 Trends in animal population levels, habitat conditions or crop impacts;
- 🐾 Hunter pressure and over harvest patterns on public and private land
- 🐾 Basic biological information of the sex and age of the animals harvested.

Hunting and trapping are closely regulated by FWP so that some of the excess animals in a population are removed each year. The number of furbearers trapped is an indicator of the population size. Hunting and trapping remain as one of the most important management tools because harvest can be controlled by laws and regulations. Seasons may be shortened and harvests smaller when numbers are down. Hunting can be reduced or stopped to help lower their death rate increasing population levels; as with threatened or endangered species. Trapping regulations, for example, are often changed from year to year to reflect changes in animal numbers. Trapping season lengths may also be adjusted to reflect the animal populations or quotas are established to limit excessive harvest. In this way, trapping can be used to keep wildlife populations healthy; to keep wildlife within the carrying capacity of their habitat; and to protect the habitat from damage. The state has the responsibility to monitor furbearers and harvest success, and to regulate the harvest accordingly for sustainable populations.

The FNF forest plan and management implementation programs address resource-management issues up front in the project planning stages by avoiding, reducing or removing threats to wildlife or habitat. Standards that maintain or conserve habitats within the natural variability at the coarse landscape scale (riparian or old growth management) or those standards that provide individual components at the fine filter (coarse woody material, snags) will promote and conserve long-term wildlife diversity. Some species, such as the Canada lynx, wolverine and fisher are classified as endangered, threatened, or sensitive, and are further evaluated and discussed in biological assessments or biological evaluations. Habitat maintenance for the furbearers occurs at the project level through implementation of management direction. Habitat improvement projects for big game and threatened and endangered species, wildfires and fire use management provide diversity of habitats for small and big game species. FNF access management and improvement of secure habitat reduces access for trapping areas and other human-wildlife conflict situations with approximately 67% wilderness or inventoried roadless, a low road density of 0.4/miles per square mile; both attributes of high quality carnivore habitat. FWP provides and supports programs to conserve and enhance Montana's terrestrial ecosystems and the diversity of species inhabiting them, oftentimes in cooperation with the FNF. Forest biologists are in contact with State FWP biologists during forest management projects that may potentially affect wildlife. State FWP biologists often provide technical assistance in project design to benefit or reduce impacts to wildlife habitat.

In addition to habitat quality and quantity, many factors other than Forest Service management can influence forest carnivores. Mild winters, severe winters, predation, habitat loss due to private land development, and trapping also affect the population.

**Recommended Action:** Statistical estimates of trapping, hunting, and harvest in Montana are maintained and monitored by the FWP. Winter track survey efforts assist in providing information on furbearer trend and distribution but have been inconsistent due to personnel limitations and weather conditions. Perhaps the most important data is obtained from trappers and

houndsmen who are required to submit for tagging all hides from bobcat, otter, marten, fisher and wolverine that are taken. There is no season for lynx. FWP has the monitoring in place to maintain furbearers on the landscape. The FNF will continue to evaluate lynx habitat conditions with the use of the habitat monitoring requirements for the 2007 Northern Region Lynx Management (NRLM) biological opinion terms and conditions. In addition, maintaining Amendment 21 standards for coarse woody material, snags and old growth in forest stands, implementing Forest Plan riparian management standards, and implementing A19 access management for grizzly bears provide potential habitat and habitat components for furbearers and prey.